



**red-y industrial series** product information

# Thermal Mass Flow Meters and Controllers for Gases with IP67 & Ex Protection

# High accuracy for heavy duties:

## Mass Flow Meters & Controllers with IP67 & Ex Protection

**Reliable technology and industry standard interfaces for rough environments:**  
**Our tried and tested thermal mass flow meters and controllers for gases now available as IP67 / NEMA 6 version.**

### Accurate measurement

The devices offer high accuracy and a wide dynamic range.

2 instrument versions:

«Standard» and «Hi-Performance»

**Accuracy up to  $\pm 0.3\%$  of full scale +  $\pm 0.5\%$  of reading**

**Turndown ratio 1 : 100**

Extended turndown ratio on request

### Analog & digital: 2 in 1



The flow meters & controllers make use of the latest CMOS technology and have a digital (Modbus RTU) and analog interface as standard

### IP67 / NEMA 6 protection



The instruments offer IP67 / NEMA 6 protection against solid particles and water

### ATEX certification



red-y industrial devices come along with ATEX certification (Category 3 / Zone 2 & 22)

### Multiple connections



The industrial series are available with different connection types: Cable gland with compression fitting or optional M12 plug on top

### Options



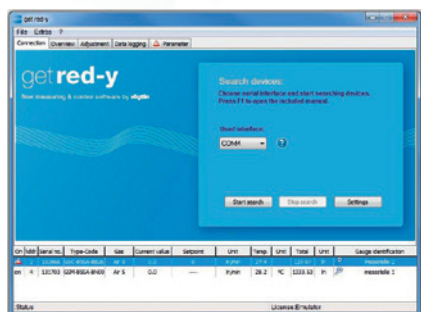
#### Multigas device

A device can be used for up to 10 different gases or gas mixtures



#### Profibus

The instruments are available with Profibus interface: DP-V0 & DP-V1 protocols



### Setup tool «get red-y»

Efficient device setup with the free «get red-y» software:

- » **Service tool for remote maintenance**
- » **Switch gas type**
- » **Switch measurement units**
- » **Adjust control parameters**

### 3-year warranty\*



High-quality components ensure long and trouble-free operation

\*does not apply to calibration, options and accessories



Available connections «red-y industrial series»

Cable gland (standard)



Cable gland with optional Profibus



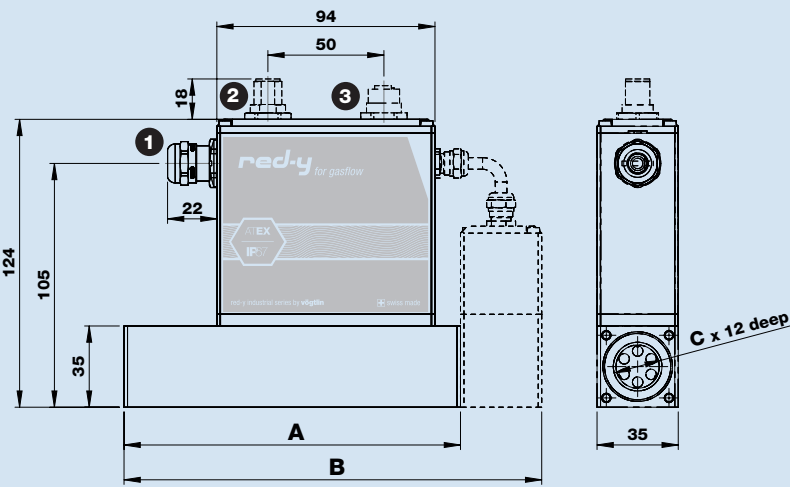
M12 plug (option)



M12 plug with optional Profibus



Dimensions «red-y industrial series»



Type	Length (mm)		Process Connection
	A	B	C
GIM-A GIM-B GIM-C	94	–	G1/4"
GIM-D	145	–	G1/2"
GIC-A GIC-B GIC-C	–	134	G1/4"
GIC-D	–	180	G1/2"
GIC-D (double valve)	–	198	G1/2"

Electrical Connection

- 1 Cable gland / cable diameter 6-8mm
- 2 M12 connector A-Coding 8pol male
- 3 M12 connector B-Coding 5pol female

## Technical Data «red-y industrial series»

### Instrument types



**industrial meter GIM**  
Thermal mass flow meter



**industrial controller GIC**  
Thermal mass flow controller



**industrial controller GIE**  
Thermal mass flow controller with external valve

### Instrument versions

#### «Standard»

The economic solution

Accuracy:  $\pm 1.0\%$  of full scale\*

Turndown ratio: 1 : 50

#### «Hi-Performance»

With highest accuracy and turndown ratio  
(available for GIM < 200 l/min /  
GIC < 150 l/min (air))

Accuracy:  $\pm 0.3\%$  of full scale +  $\pm 0.5\%$  of reading\*

Turndown ratio: 1 : 100

\*An additional error of  $\pm 0.25\%$  may apply for analogue signals

### Measuring ranges

(Air/Full scale freely selectable)	Type	Measuring range (air)		Process Connection
<b>red-y industrial meter GIM</b> Meter	GIM-A	from 0 ... 25 ml/min	to 0 ... 600 ml/min	G $\frac{1}{4}$ "
	GIM-B	from 0 ... 600 ml/min	to 0 ... 6000 ml/min	G $\frac{1}{4}$ "
	GIM-C	from 0 ... 6 l/min	to 0 ... 60 l/min	G $\frac{1}{4}$ "
	GIM-D	from 0 ... 60 l/min	to 0 ... 450 l/min	G $\frac{1}{2}$ "
<b>red-y industrial controller GIC</b> controller	GIC-A	from 0 ... 25 ml/min	to 0 ... 600 ml/min	G $\frac{1}{4}$ "
	GIC-B	from 0 ... 600 ml/min	to 0 ... 6000 ml/min	G $\frac{1}{4}$ "
	GIC-C	from 0 ... 6 l/min	to 0 ... 60 l/min	G $\frac{1}{4}$ "
	GIC-D	from 0 ... 60 l/min	to 0 ... 450 l/min	G $\frac{1}{2}$ "

### Performance data

<b>Media</b> (real gas calibration)	Air, O $_2$ *, N $_2$ *, He, Ar, CO $_2$ , H $_2$ , CH $_4$ , C $_3$ H $_8$ (other gases and gas mixtures on request) *O $_2$ & N $_2$ are calibrated with air
<b>Response time</b>	Meter: 50 ms; Controller: 150 ms
<b>Repeatability</b>	$\pm 0.2\%$ of full scale
<b>Longterm stability</b>	< 1% of measured value / year
<b>Power supply</b>	24 Vdc (18 – 30 Vdc), 15 Vdc on request
<b>Current consumption</b>	Meter: max. 100 mA; Controller: max. 250 mA (except GIE)
<b>Operation pressure</b>	0.2 – 11 bara (GIC with valve type 4.5 and 8 max. 8 bar a)
<b>Temperature</b> (environment/gas)	0 – 50°C
<b>Pressure sensitivity</b>	Less than 0.2% RD per bar (typical N $_2$ )
<b>Temperature sensitivity</b>	Less than 0.025% FS per °C (typical N $_2$ )
<b>Warm-up time</b>	< 1 sec. for full accuracy

### Materials

<b>Body</b>	Stainless steel 316L (see operating instructions for wetted parts)
<b>Electronic Housing</b>	Aluminum
<b>Seals</b>	EPDM (FDA), optional FKM

### Integration

<b>In- / Output signals analog</b>	0..20 mA, 4..20 mA, 0.5 V, 1..5 V, 0..10 V, 2..10 V
<b>In- / Output signals digital</b>	RS-485; Modbus RTU 2 wire (Slave); Lab View-VIs available / Option: Profibus DP-V0, DP-V1
<b>Process connection</b>	G $\frac{1}{4}$ " (BSPP* female) up to 60 l/min, G $\frac{1}{2}$ " (BSPP* female) up to 450 l/min *British Standard Pipe Parallel
<b>Inlet section</b>	None required
<b>Electrical connection</b>	Cable gland with compression fitting / Option: M12 plug (DIN-standard) (both connection IP67 protected)
<b>Mounting orientation</b>	All orientations are possible. We recommend horizontal mounting. Please contact the manufacturer for further information.

### Safety

<b>Test pressure</b>	16 bara
<b>Leak rate</b>	< 1 x 10 <sup>-6</sup> mbar l/s He
<b>Environmental protection</b>	IP67 (conforms to NEMA 6)
<b>EMC</b>	CE EN 61326-1
<b>ATEX Certification</b>	Ex II 3G nA IIC T4 Gc (Category 3/Zone 2)    Ex II 3D Ex tc IIIC T100°C Dc (Category 3/Zone 22)

Type code «red-y industrial series»

Instrument type	red-y industrial series (Gas)	G I									
Function	Meter									M	
	Controller									C	
	Controller with external valve									E	
Full scale of measuring range (air) defined by manufacturer	Customer-specific (Divider A, up to 600 mln/min)									A	X
	Customer-specific (Divider B, up to 6000 mln/min)									B	X
	Customer-specific (Divider C, up to 60 ln/min)									C	X
	Customer-specific (Divider D, up to 450 ln/min)									D	X
Instruments version	Standard (±1.0% full scale, 1 : 50)										S
	Hi-Performance (±0.3% full scale, ±0.5% reading, 1 : 100)										T
	Customer-specific/OEM										K
Connection/Materials (body, seals)	Cable gland/Stainless steel/EPDM (FDA)**										S
	M12 plug/Stainless steel/EPDM (FDA)										T
	Cable gland/Stainless steel/FKM										U
	M12 plug/Stainless steel/FKM										V
	Customer-specific/OEM										K
Analog signals (output)	Current 4..20 mA**										B
	Current 0..20 mA										C
	Voltage 0..5 V										D
	Voltage 1..5 V										E
	Voltage 0..10 V										F
	Voltage 2..10 V										G
	Customer-specific/OEM										K
Analog signals (input)	Current 4..20 mA**										B
	Current 0..20 mA										C
	Voltage 0..5 V										D
	Voltage 1..5 V										E
	Voltage 0..10 V										F
	Voltage 2..10 V										G
	Not defined										N
Control valve (integrated) defined by manufacturer	Customer-specific/OEM										K
	Type 0.1										2 1
	Type 0.2										2 2
	Type 0.5										2 3
	Type 1.2										2 6
	Type 4.5										1 2
	Type 8.0										1 3
	Valve mounted										9 5
	Customer-specific/OEM										9 9
	No valve										0 0
Type code		G	I			-				-	

\*\*standard

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